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Date: Tue, 2 Jan 1996 02:04:22 -0600 (CST)
Message-Id: <199601020804.CAA04833@uro.theporch.com>
Errors-To: ws4s@midtenn.net
Reply-To: glowbugs@theporch.com
Originator: glowbugs@theporch.com
Sender: glowbugs@theporch.com
Precedence: bulk
From: glowbugs@theporch.com
To: Multiple recipients of list <glowbugs@theporch.com>
Subject: GLOWBUGS digest 64
X-Listprocessor-Version: 6.0c -- ListProcessor by Anastasios Kotsikonas
X-Comment: Please send list server requests to listproc@theporch.com
Status: 0

GLOWBUGS Digest 64

Topics covered in this issue include:

- 1) Help needed on homebrew TX
by Bob Roehrig <broehrig@admin.aurora.edu>
- 2) power supply for 6L6 Special
by Bruce Robertson <brucero@epas.utoronto.ca>
- 3) Re: power supply for 6L6 Special
by lbbarley@southwind.net (Bruce Barley)
- 4) "Soft" Detector Tubes
by "James P. Rybak" <jrybak@mesa5.Mesa.Colorado.EDU>

Date: Mon, 1 Jan 1996 11:04:05 -0600 (CST)
From: Bob Roehrig <broehrig@admin.aurora.edu>
To: glowbugs <glowbugs@theporch.com>
Subject: Help needed on homebrew TX
Message-ID: <Pine.ULT.3.91.960101104834.1279C-100000@admin.aurora.edu>

For the last week I have been building a CW transmitter for a friend.
It started out to be a rebuild of an old homebrew xtal controlled
rock crusher novice rig he picked up (single 6146) that was very
poorly constructed.

Anyway, I started over. The new rig has a solid state VFO (Hi-C Hartley
FET osc with several untuned followers & buffers behind it). The tube
part of the rig consists of a 6V6 driver and a pair of 2E26's as a push-

push doubler in the final. Basically, it seems to work as expected in that power input is around 40 watts and output is 20 watts (This thing is running close to class B because of drive capability). All unwanted products (harmonics and osc feedthru) are at least -35dB.

Problem 1: Even though there are numerous buffers after the VFO osc stage, tuning the grid tank of the final stage pulls the osc off freq. The VFO is a self contained unit inside a minibox and is powered from a 7812 regulator. This pulling even happens when in the standby mode, where the final grids are switched to a cutoff bias.

Problem 2: There is noticeable hum on the carrier, worse at the higher bands (15 is worse than 40). I cannot detect the hum on a Marconi modulation meter although I can see a slight ripple on the carrier on a scope. I would guess the hum is less than 1% modulation, but I certainly can hear it. How much hum is acceptable? I haven't tried an on-the-air test with anyone yet. Plate supply ripple is 2V P-P and bias supply has no detectable ripple. Appears to be clean thru the driver stage but appears when the finals are engaged.

Any ideas?

Thanks de Bob, K9EUI (broehrig@admin.aurora.edu)

Date: Mon, 1 Jan 1996 15:29:14 -0500 (EST)
From: Bruce Robertson <brucerob@epas.utoronto.ca>
To: Multiple recipients of list <glowbugs@theporch.com>
Subject: power supply for 6L6 Special
Message-ID: <Pine.SGI.3.91.960101152301.22911A-1000000@epas.utoronto.ca>

After learning form some of you about the pit-falls of using a transformer as a choke, I'm now left without a big choke for my single tube 6L6 rock-bound project. I was thinking that choke input and its great regulation would be a good thing, but I'm now wondering about cap-input. My 53 Handbook wisely (though vaguely) sayas that good regulation is a good thing for a single stage rig, but it doesn't tell me what I need: 20%? Any rules of thumb out there? In my experinee a xtal alone doesn't drift much with voltage, but then that was down in the 12v range. Hmmm. I can get BIG caps, but I think I'll try for the 47 mmf 500 v ones. At 400v with a good bleeder am I out of the ball-park?

Just trying to borrow someone's life's experience :-)

72, VE3UWL

Bruce G. Robertson Dept. of Classics, U. of T.

Date: Mon, 1 Jan 1996 15:46:11 -0600
From: lbbarley@southwind.net (Bruce Barley)
To: brucerob@epas.utoronto.ca
Cc: glowbugs@theporch.com
Subject: Re: power supply for 6L6 Special
Message-ID: <199601012146.PAA12299@onyx.southwind.net>

>From one Bruce to another - Hi.

If you are using a vacuum tube rectifier (a 1a' 5U4 family), a large value capacitor input filter will yield a very large peak current to the first capacitor in the filter which can be enough to really shorten the life of your rectifier. For something of the 6L6 single tube power range, I would suggest nothing larger than 40 mfd for the input filter. If you have access to a RCA Receiving Tube Manual (mine is RC-29, ca 1973), you will see the voltage drop, versus B+ power delivered is a lot steeper using a capacitor input rather than a choke input filter. And those design curves are specified 40 mfd. If by any chance you are using a half wave, rather than a full wave rectifier circuit, the peak current to the input filter capacitor is even greater! A direct result of this is that the power transformer itself must be derated in total power handling capacity due to this peak current.

My '61 ARRL handbook shows a 6DQ6 single tube - rock bound which uses only 8 ufd in each filter section (but with a choke - as a PI filter). Runs 370 VDC to the plate and REGULATED 150 VDC to the screen grid. This is done with an OD3/VR150 regulator tube.

In some of the old televisions, it wasn't uncommon to find several hundred mfd capacitors at 450 VDC in the filter circuits. However, you typically found a fairly stiff input resistor at the start of the whole shebang, and remember that the load current on the supply was virtually STEADY. In your 1 tube you will have an on-off situation drawing several tens of watts out of that filter. To help in limiting the current surge in the first capacitor, I would look at putting about 270 - 330 ohms (at 10 watts wire wound) in series with the first capacitor. The penalty here is going to cost you about 25 to 30 volts. If you stay at around 8 mfd for your input capacitor, you can get by without this resistor. You may find it advantageous to put your large capacitor as the second capacitor (or even 3rd) in your p/s filter, and use a couple of hundred ohms at 5 watts wire wound between the 1st and 2nd capacitor (and about 150 ohms at 5 watts w/w between the 2nd and 3rd filter capacitor). At 90 ma total draw, you'll drop about 20 volts across the resistor between the 1st and 2nd capacitor.

However, your a-c ripple will be down to typically close to 1% coming out of these filters at rated load. And you want to keep better than 10% regulation on your B+ line.

I really like the idea of the screen regulator. It will help keep a more constant load on your power supply in a key up condition, and should help reduce how "yoopy" your on-air signal sounds. So too, will a good bleeder of about 47K at 10 watts. Combine the two, and you probably will have a signal that won't draw too much attention from your 0-0. {Do we still have Official Observers? Yes/No}.

If you're into building, there are several circuits in the '61 ARRL handbook for voltage regulators which are multi-tube circuits, not too complex, and DON'T require those chokes which are so hard to come up with in the 10+ hy and 100+ ma ranges. You might take a look and see if any of those tickle your fancy. Once built, they would be useful for a multitude of projects.

Best wishes for '96. Hope to get to work you on 40 with that rig when you get it up and running.

Bruce Barley - KB0PZD
lbbarley@southwind.net

>After learning form some of you about the pit-falls of using a
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>72, VE3UWL

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>Bruce G. Robertson Dept. of Classics, U. of T.

Date: Mon, 1 Jan 1996 14:54:49 -0700 (MST)
From: "James P. Rybak" <jrybak@mesa5.Mesa.Colorado.EDU>
To: Glowbugs <glowbugs@theporch.com>
Subject: "Soft" Detector Tubes

Message-ID: <Pine.3.89.9601011402.A11198-01000000@mesa5.mesa.colorado.edu>

I know that the UV200 and UX200 were "soft" detector tubes. (They did not have a "hard" vacuum.) Can anyone tell me what other varieties of "soft" detector tubes were used in the early 1920's? For instance, what about the UV199, UX199, WD11, etc.?

Thanks.

Jim Rybak WOKSD

End of GLOWBUGS Digest 64
